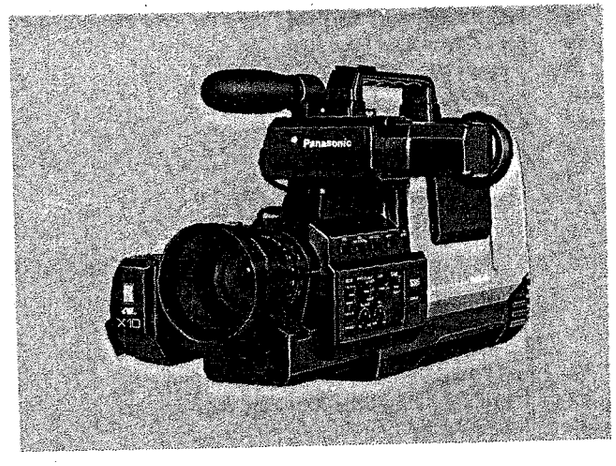
S-VHS Movie

AG-450

Operating Instructions



S-VHS 625 VHS PAL

Panasonic

Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT2998-1

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IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

S-VHS Movie AG-450

- **The rating plate is on the bottom side of the S-VHS Movie.**

AC Adaptor VW-AM7

- **The rating plate is on the bottom panel of the unit.**
- **This model conforms to the EC directive (for radio interference) 82/499/EEC.**

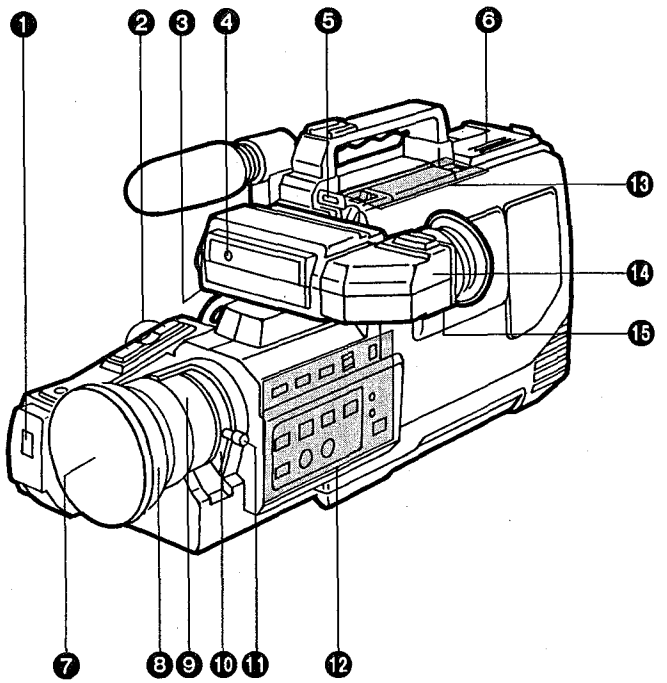
FOR YOUR SAFETY

■ **DO NOT REMOVE THE OUTER COVER.**

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

is the safety information.

CONTROLS AND COMPONENTS



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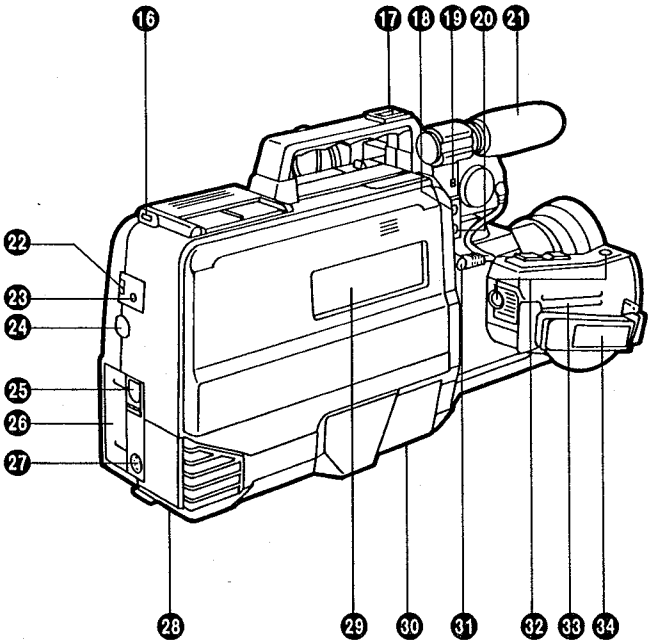

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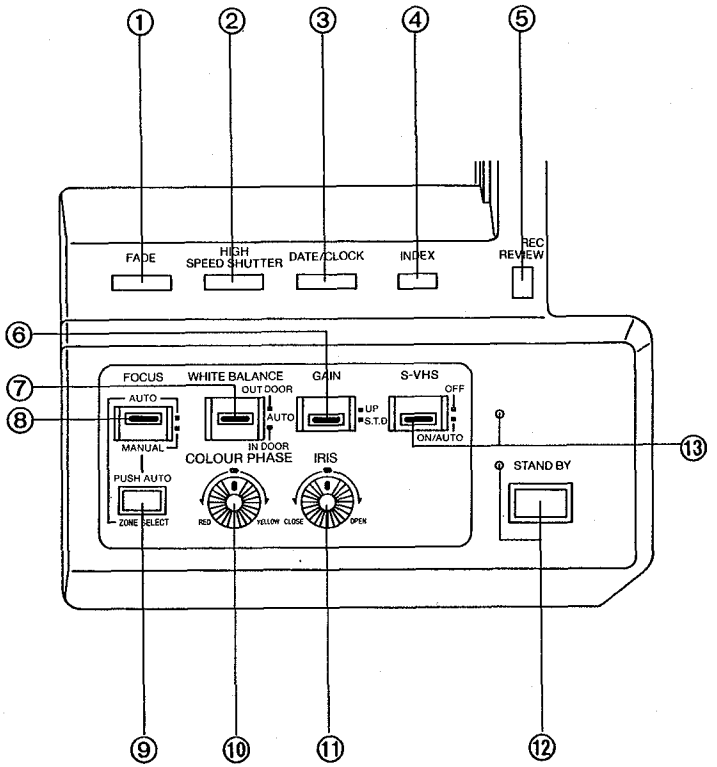
⑫ Main Operation Controls



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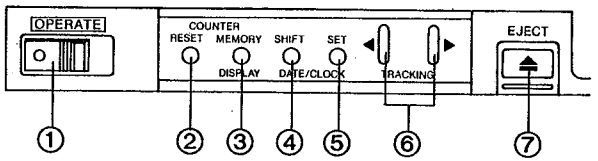
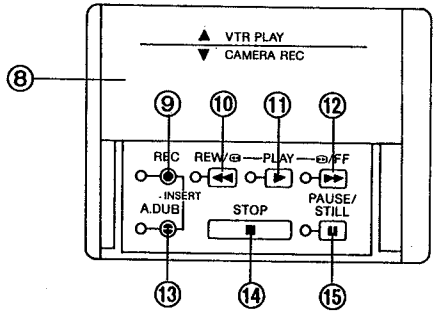
⑬ General Operation Controls



⑥ Tape Running Buttons



⑧ Function of the Camera/VTR Selector Cover

Closed	For camera recording.
Open (as illustrated)	For other operations than camera recording.

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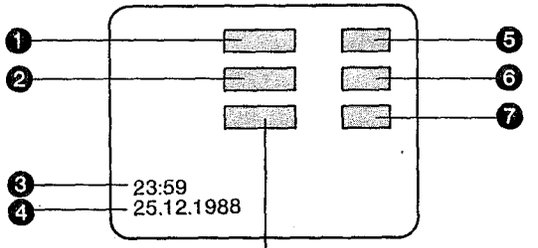
Electronic Viewfinder

The following indications are diaplayed in the Electronic Viewfinder (EVF) to inform you of the operating conditions of the S-VHS Movie



Warning/Alarm Indications

BATT — There is little battery power left. The S-VHS Movie will be turned off in a few minutes. Replace the battery pack with a fully recharged one.

TAPE — It is impossible to record because the erasure prevention tab of the cassette is not intact.

END — During recording, the tape has reached its end. Replace the tape with a new one.

DEW — When condensation has formed inside the S-VHS Movie, the "DEW" indicator will flash and a few seconds later, the unit will turn itself off.

❶ Remaining Battery Power/Index Indication

E- - - -F The "▬" indications begin to disappear from right to left as the power of the battery pack weakens.

INDEX This indicator flashes when a recording is started or when the Index Signal Recording Button is pressed and it indicates that an index signal is being recorded.

❷ Counter Indication

M0123 Tape Counter

1:23.45 Lap Time Counter

❸ Clock Indications

❹ Date Indications

❺ Recording/Insert Indication

REC Recording

--- Recording Pause

INST Insert

--- Insert Pause

❻ S-VHS System Indication

S VHS S-VHS System

" " VHS System

❼ High Speed Shutter Mode Indication

1/250 1/250 sec.

1/500 1/500 sec.

1/1000 1/1000 sec.

Manual White Balance indication

OUT OUTDOOR

IN INDOOR

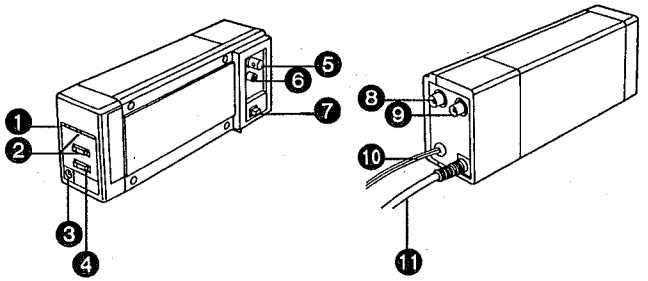
- Some of the above indications may light up alternately at the same place in the EVF to indicate the corresponding operating condition or warning.

AC Adaptor (VW-AM7)

Precautions

- Avoid violent shocks and rough handling of the unit.
- Do not allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- When unplugging the mains cord or other connection cords, be sure to grasp the plug, not the cord.
- When listening to a radio while the AC Adaptor is in operation, the radio reception may be distorted. In this case, move the radio away from the AC Adaptor.
- Do not block or cover the ventilation slots on the top and side of the unit, especially by soft material such as cloth or paper.

Controls and Components



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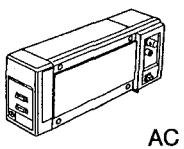
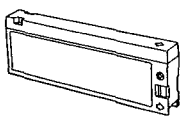
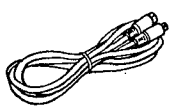
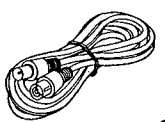
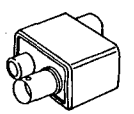
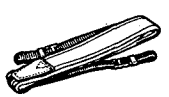
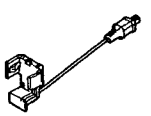
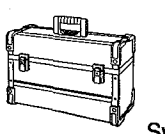
S-VHS MOVIE SYSTEM ACCESSORIES

 AC Adaptor (supplied)	 Battery Pack (supplied)	S-VHS Video Cassette (supplied)	Battery for Clock Operation (supplied)
 S-Video Cord (supplied)	 DIN-DIN Coaxial Cable (supplied)	Cloth for Cleaning the Lens (supplied)	 AV Converter Connector (supplied)
Earphone (supplied)	 Shoulder Strap (supplied)	 Battery Pack Charging Connector (supplied)	 System Carrying Case (supplied)

CAUTION: TO PREVENT FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

S-VHS FORMAT

About the S-VHS Format

S-VHS 625

The S-VHS video format is the new video system that fulfills the exceedingly high demands and expectations of today's video-information age.

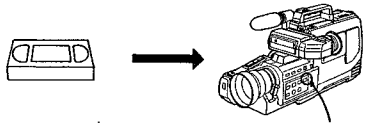
It is newly developed based on the VHS video format established throughout the world for home use and employs a wealth of latest technology to provide higher resolution and picture quality. The newly developed, high-performance S-VHS video cassette tapes enable the S-VHS format to realize truly epoch-making improvements in overall picture quality and clarity.

This S-VHS camera recorder allows high picture quality recording and playback by using the video cassettes carrying the S-VHS mark as well as conventional VHS recording and playback on the video cassettes bearing the VHS mark.

Compatibility of VTRs and Tapes

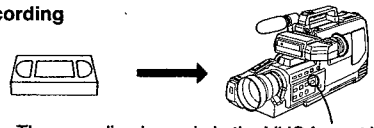
When Recording

S-VHS Cassette Tape for Recording → **Recording with the AG-450** → **Recorded Tape** (S-VHS Format / VHS Format)



Set the S-VHS System Selector to "ON/AUTO" (S-VHS format) or to "OFF" (VHS format).

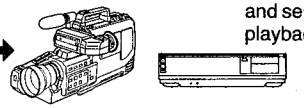
Conventional VHS Cassette Tape for Recording → **Recording with the AG-450** → **Recorded Tape** (VHS Format)



The recording is made in the VHS format irrespective of the position to which the S-VHS System Selector is set. (It is not possible to record in the S-VHS format.)

When Playing Back

Recorded Cassette Tape (S-VHS Format) → **AG-450 or other S-VHS VTR**



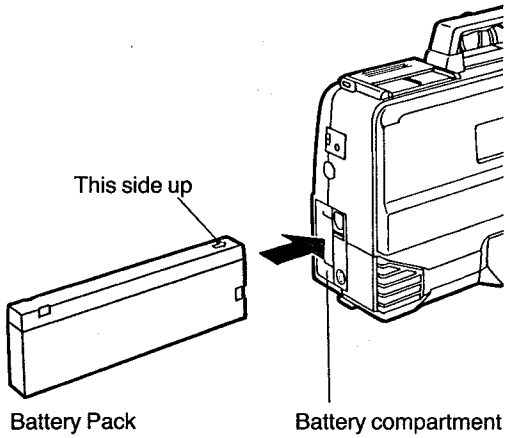
- The video format in which the tape was recorded will be automatically detected and selected for playback.

Recorded Cassette Tape (VHS Format) → **Conventional VHS VTR**

- It is not possible to obtain a normal, clean playback picture from a tape which was recorded in the S-VHS format.

THE POWER SUPPLY UNITS

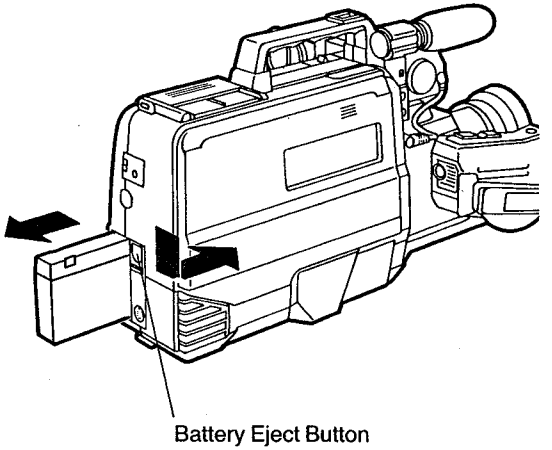
Inserting the Battery Pack (supplied)



Insert the Battery Pack into the battery compartment of the S-VHS Movie. Slide it in until it clicks into place.

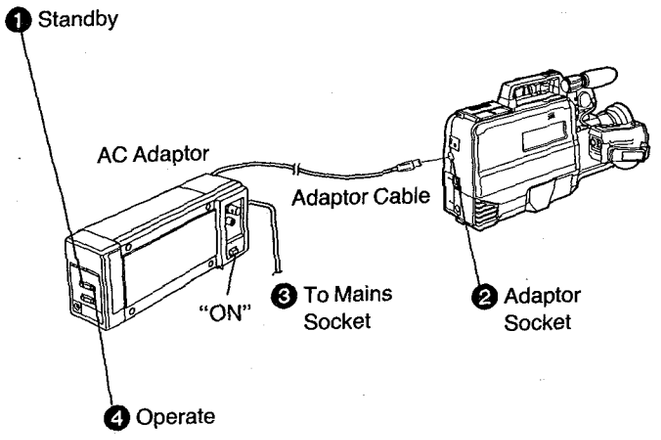
- Always use a fully charged Battery Pack.

Removing the Battery Pack



To remove the Battery Pack, release it by pressing the Battery Eject Button down and in, then slide the Battery Pack out.

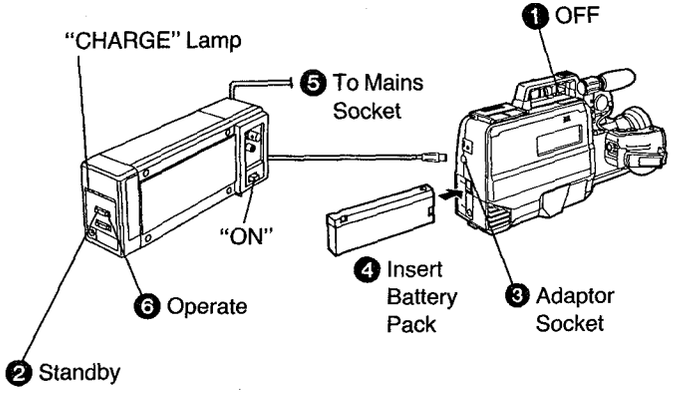
AC Adaptor (supplied)



- It is possible to recharge one or even two battery packs simultaneously by using the AC adaptor (supplied). For more details about charging, refer to page 14.
- Never use any other AC adaptor than specified.

Charging the Battery Pack

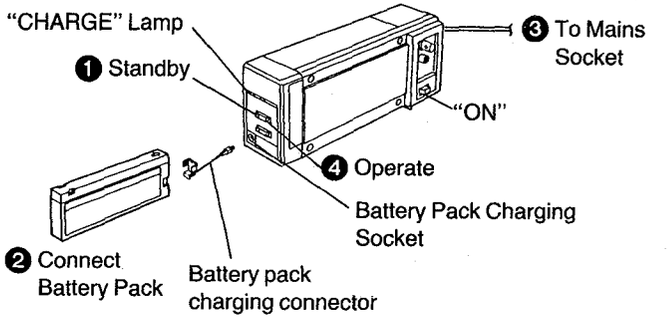
To charge an inserted battery pack in the S-VHS Movie



- The Charging Indicator will go out about 110 minutes after charging starts. However, the Battery Pack should be charged at least 3 hours for extended use.

To charge the Battery Pack connected to the AC Adaptor

Use the Battery Pack Charging Connector provided with the AC Adaptor.



- It is possible to charge two battery packs simultaneously—one connected to the AC Adaptor and another inserted in the S-VHS Movie. However, charging them at the same time takes twice as long as charging them separately.

Cautions for Using Battery Packs

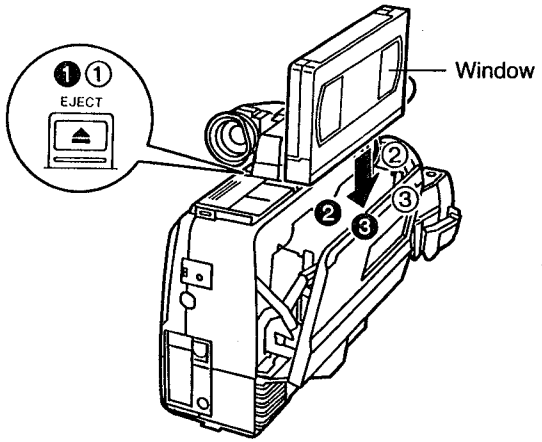
Operating Time with the Battery Pack

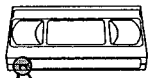
- This S-VHS Movie can record continuously for approx. two hours at normal temperatures (25°C) with a fully charged battery pack (supplied).
  If the S-VHS Movie is used for recording intermittently or at low temperatures, the total possible recording time will be reduced. It is recommended to turn off the S-VHS Movie or switch over to the standby mode when not actually recording.
- Never use an insufficiently charged or exhausted battery pack. If you use such a battery pack, voltage drops during recording or playback will cause the S-VHS Movie to be switched off to protect the battery pack and the S-VHS Movie itself.
- The battery pack can become exhausted not only during recording and playback, but also when it is in the standby mode for long periods of time. It is recommended to carry battery packs along which will last two or three times the intended recording duration.

To Extend the Battery Life

1. Be sure to recharge the battery pack soon after use. If the battery pack is left in discharged condition for a long period of time, it may not be possible to recharge it.
2. Be sure to recharge the battery pack before use. If the battery pack was stored for a long time after recharging it, the battery level may be reduced and the operation time could be shortened.
3. Be sure to recharge the battery pack once every six months even if it is not used.
4. To protect the battery pack, avoid recharging it for more than 24 hours.
   - Do not overcharge nor completely discharge battery packs.
5. Store it in a dry and cool place.

THE VIDEO CASSETTE

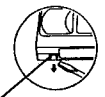




Removal of the Erasure Prevention Tab help prevent accidental erasure of important recording.

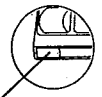
Erasure Prevention Tab

To prevent accidental erasure



Break off the tab with a screwdriver.

To record again



Cover the hole with adhesive tape.

Inserting the Video Cassette

❶ Press the Eject Button.

❷ Insert the video cassette into the cassette compartment with its window facing outside.

❸ Push the cassette compartment cover inward, until it locks with a click.

- Use S-VHS and VHS video cassettes only.
- When a power supply unit (Battery Pack or AC Adaptor) is connected to the S-VHS Movie, the Eject Button remains operative, even if the S-VHS Movie has been switched off with the Operation On/Off Switch.

Removing a Video Cassette

① Press the Eject Button.

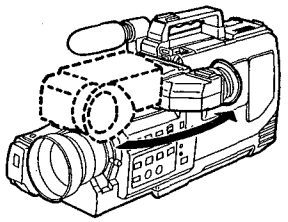
② Pull out the video cassette.

③ Push the cassette compartment cover inward, until it locks with a click, to close the cassette compartment.

ELECTRONIC VIEWFINDER

Rotate the electronic viewfinder

Turn the EVF outward until it locks with a click.

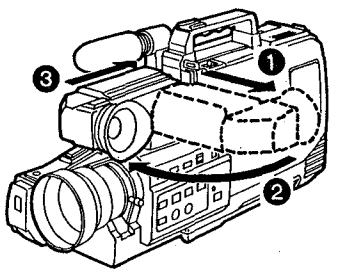


To move the viewfinder back to its original position

❶ Pull the viewfinder outside.

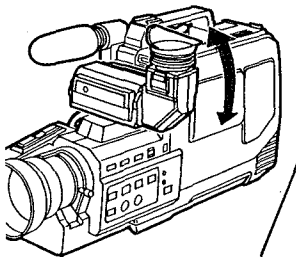
❷ Turn it forward toward the lens, as shown.

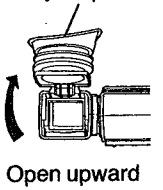
❸ Then pull the viewfinder back toward its base again.



Use in Other Positions

The eyepiece assembly can be turned vertically 180° to allow for any shooting position.



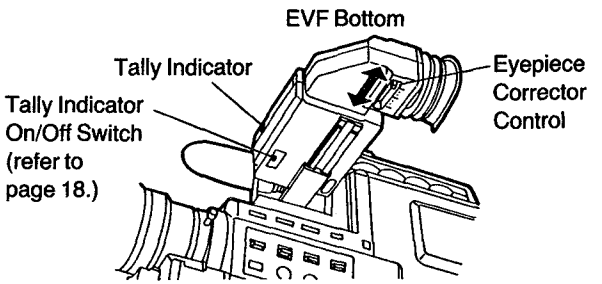


To watch the picture in the viewfinder from some distance, swing up the eyecup.

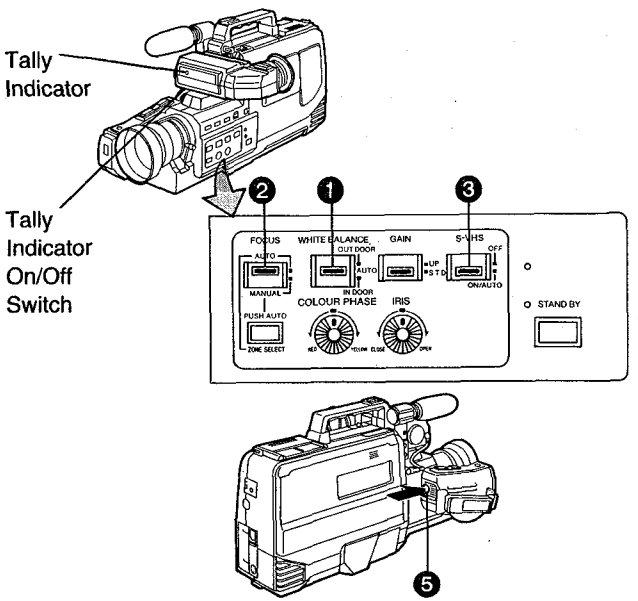
Pull the EVF outward and adjust it to the most comfortable viewing position.

Eyepiece Corrector

This control makes it possible for people who wear glasses to adjust the eyepiece to their eyesight.



CAMERA RECORDING



S-VHS System Selector

ON/AUTO: S-VHS cassette tapes are automatically recorded in the S-VHS format and VHS cassette tapes are automatically recorded in the VHS format.

- When recording in the S-VHS format, the S-VHS Format Indicator will be lit.

OFF: To make a recording in the VHS format on an S-VHS cassette tape.

- If the setting of this selector is changed during shooting, some picture distortion will occur during playback.

Preparation

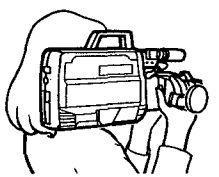
1. Slide the Camera/VTR Selector Cover close so that it covers the Tape Running Buttons.
2. Slide the Operation On/Off Switch backward to turn the S-VHS Movie on.
3. Insert a video cassette with the erasure prevention tab intact.
   - A few seconds later, the S-VHS Movie will change over to the recording pause mode.

❶ Set the White Balance Mode Selector to "AUTO".
For more details, see page 32.

❷ Set the Focus Mode Selector to "AUTO".
For more details, see page 33.

❸ Set the S-VHS System Selector to "ON/AUTO".

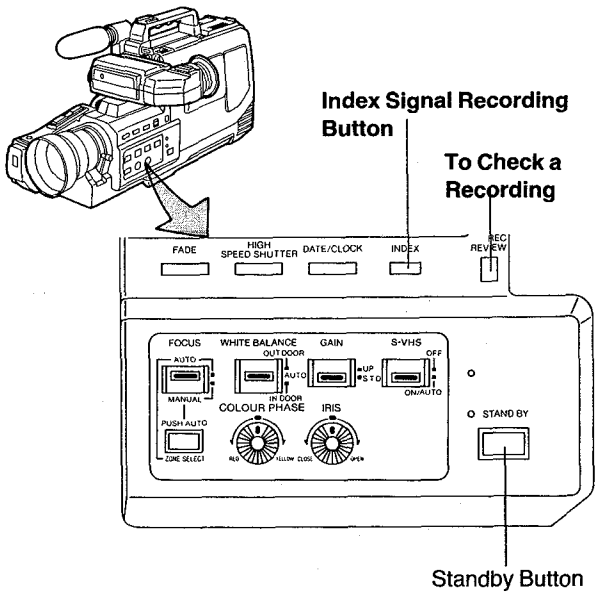
❹ Place the S-VHS Movie in the shooting position.



- Grasp the Handgrip and adjust the length of the Grip Belt with the Velcro tape closure to the size of your hand.
- Attach the Lens Cap to the Grip Belt.

❺ Press the Start/Stop Button.

- The Recording Indication "REC" is displayed in the EVF and the recording starts.
- If the Tally Indicator On/Off Switch on the underside of the EVF is set to "On", the Tally Indicator on the front of the EVF will also be lit, so that people in front of the camera know that the shooting is under way.



- If the S-VHS Movie is left in the pause mode for more than 6 minutes:
  The S-VHS Movie will automatically switch over to the standby mode (viewfinder is off) to protect the tape and save battery power. To switch over to the recording pause mode (viewfinder is on) again, press the Standby Button.
- When the tape reaches its end, the S-VHS Movie will automatically switch over to the stop mode.

❻ To temporarily stop the recording (recording pause), press the Start/Stop Button again.

❼ To finish the recording, put the S-VHS Movie in the recording pause mode and then slide the Operation On/Off Switch backward again to turn the S-VHS Movie off.

To Check a Recording

Press the Rec Review Button whilst the S-VHS Movie is in the recording pause mode.

- The last 2 seconds of the recorded scene will be played back and the S-VHS Movie will again stop in the recording pause mode, ready for further recording.

Notes about Recording the Index Signal (VISS)

The recording of index signals at the beginning of and during recordings makes possible the use of the VHS Index Search or the Intro Scan function when playing back the tape on a VTR equipped with the VISS function.

An index signal is recorded when one of the following operations is performed.

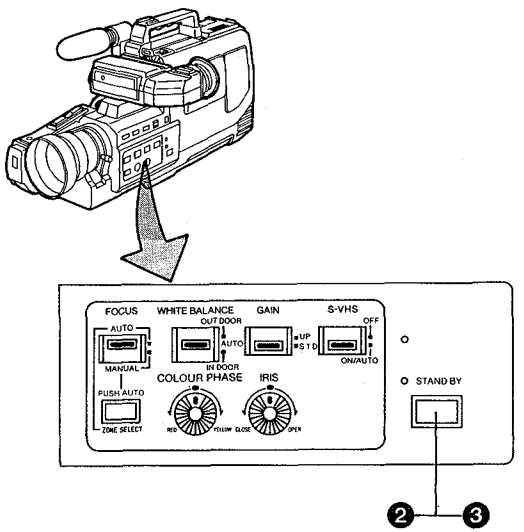
- When recording is started for the first time after the S-VHS Movie is turned on.
- When recording is restarted after the cassette is exchanged or the tape is played back.
- When the Index Signal Recording Button is quickly and lightly pressed during shooting at any tape position that you want to mark with an index signal.

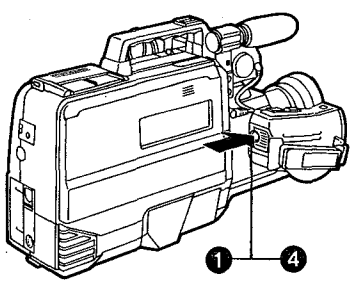
In each of these cases, the "INDEX" indication will flash for a few seconds in the EVF.

- When recording index signals, space the signals at least 2 minutes.

Standby Function

To save power and extend the life of the battery pack when the recording pause duration is longer than a few minutes





During Recording

❶ Press the Start/Stop Button to stop the recording.

Recording Pause

❷ Press the Standby Button.
- The corresponding lamp will lights up.
- The S-VHS Movie is now in the standby condition.
- No picture can be seen in the EVF.
- After putting the S-VHS Movie in the standby mode, wait at least 4 seconds before performing any other operations.

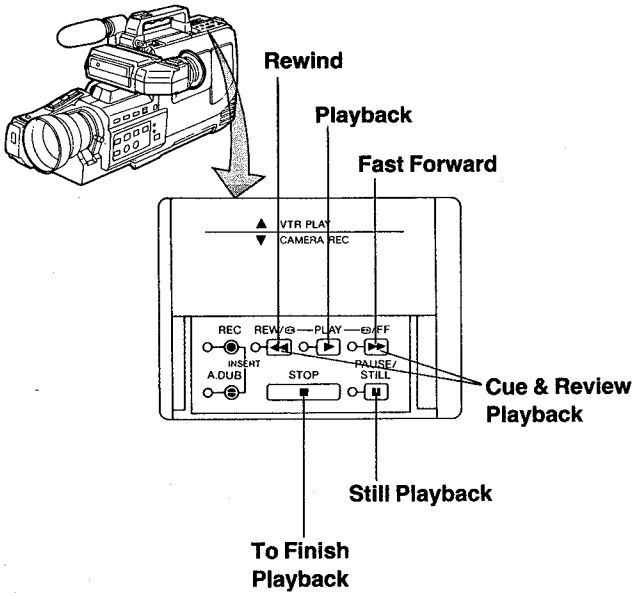
Recording Stop

❸ Press the Standby Button again to make the S-VHS Movie ready for recording the next scene.
- It takes about 5 seconds for the picture in the EVF to become stable.

Recording Pause

❹ Press the Start/Stop Button to start recording again.

PLAYBACK



Preparation

1. Slide the Operation On/Off Switch backward to turn the S-VHS Movie on.
2. Insert a recorded tape.
3. Make sure that the Edit Switch is set to "OFF".
4. Slide the Camera/VTR Selector Cover open.
5. For Playback via a TV set, see "CABLE CONNECTIONS" on pages 25–27.

Fast Forward

Press the Fast Forward Button to rapidly wind the tape forward.
- The tape will stop automatically when it reaches its end.

Rewind

Press the Rewind Button to rewind the tape.
- The tape will stop automatically at the beginning of the tape.

Playback

Press the Play Button.
- The tape will be rewound automatically when it reaches the end.

Cue & Review Playback

When the Fast Forward Button or the Rewind Button is kept pressed while the S-VHS Movie is in the playback mode, the tape will be played back at high speed in forward or reverse direction.

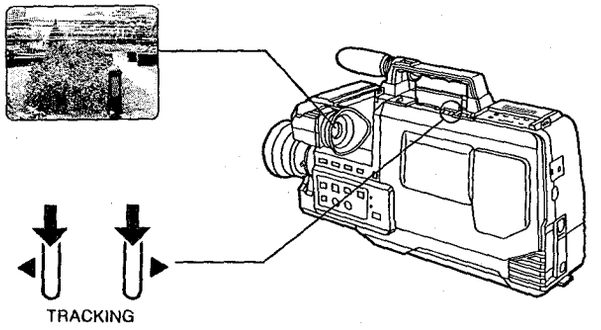
Still Playback

When the S-VHS Movie is in the playback mode, press the Pause/Still Button to view a still picture. To continue the normal playback, press this button again.

To Finish Playback

Press the Stop Button.

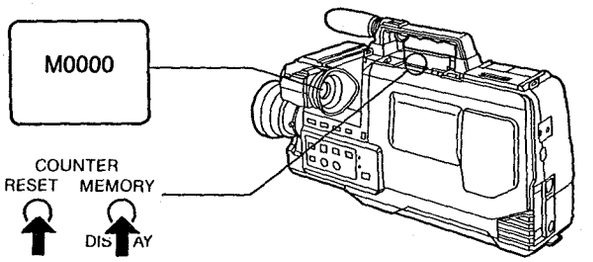
•Tracking Control



•When the playback picture contains noise bar distortion as shown in the picture above, it can be eliminated by pressing the Tracking Adjust Button.
To return the tracking control to the former setting, press the two buttons simultaneously.
•When playing back a tape which has been recorded on another video recorder, it may not be possible to completely eliminate this distortion.
•Noise which takes the form of horizontal bars appears in the Cue, Review and Still playback modes. This is not an indication of a malfunction.
•If the S-VHS Movie is left in the Still Playback mode, for more than about 6 minutes, the S-VHS Movie will switch over to the stop mode to protect the tape and the video heads.

Tape Counter and Memory Function

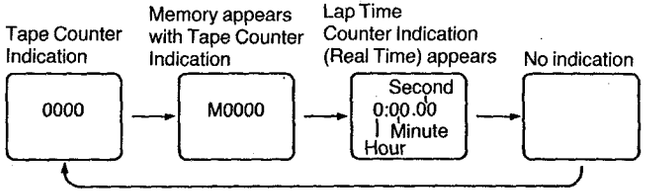
Press the Reset Button at a desired point and then press the Memory Button.
•The Tape Counter is reset to "0000" and the Memory Indicator "M" appears.



After pressing the Stop Button to end the playback, press the Rewind/Review Button.
•The tape will automatically stop at about the point where the Tape Counter reads "0000".

Counter Indication

By repeatedly pressing the Memory Button, the Counter Indication can be changed in the following sequence.

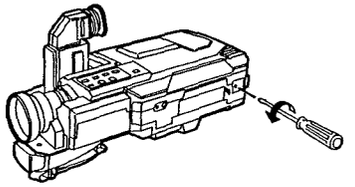


•The indication of the Lap Time Counter counts up only during recording.

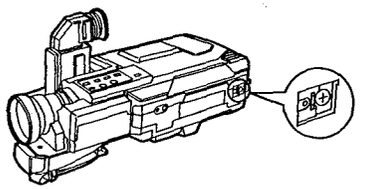
Setting of the Date and Clock & Recording the Date/Clock Indications

How to Insert the Battery for the Clock Operation

❶ Remove the lid on the bottom of the S-VHS Movie with a (+) screwdriver.



❷ Insert the "LR1130" size battery with the polarities (⊕ and ⊖) aligned correctly and then replace the lid.
- The clock starts working as soon as the battery is inserted.

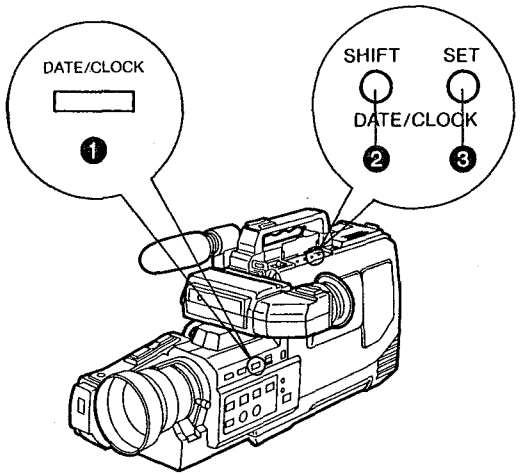


The "LR1130" size battery (supplied) is necessary for the operation of the built-in digital clock, and to memorize the Date/Clock Indications when the S-VHS Movie is turned off.

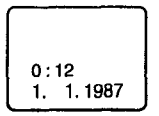
Cautions
- When this battery is almost exhausted, the whole time and date indication will flash.
- When this battery is completely exhausted, the indication "PLEASE SET BATTERY" will appear.
- To make this indication disappear, press the Date/Clock Selector twice.
- If this indication is still displayed after the battery has been replaced, turn the S-VHS Movie off and then on again.

CAUTION FOR BATTERY REPLACEMENT
- The life of the battery is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the battery once a year.
- Load the new battery with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to battery, or internal short-circuit may occur.
- Remove spent battery immediately and dispose of it.

Setting of the Date and Clock



❶ When the Date/Clock Selector is pushed, the indication shown on the right will appear in the EVF.



- If no battery is inserted, the indication "PLEASE SET BATTERY" will light up. In this case, insert the battery as described on page 23.

❷ When the Shift Button is pushed, the flashing portion will be changed in the following sequence.

Year → Month → Date → Hour → Minute

❸ When the Set Button is pushed, the flashing portion displayed will be changed in the following sequence.

YEAR: 1987→1988→ ..... →2086
MONTH: 1→2→ ..... →12
DATE: 1→2→ ..... →28→(29)→(30)→(31)
HOUR: 0→1→ ..... →23
MINUTE: 00→01→ ..... →59

- Repeat procedures ❷ and ❸ until all five items have been set.
- Once the time and date are set, press the Shift Button in response to a precise time signal so that the clock may begin to function.

Recording the Date/Clock Indications

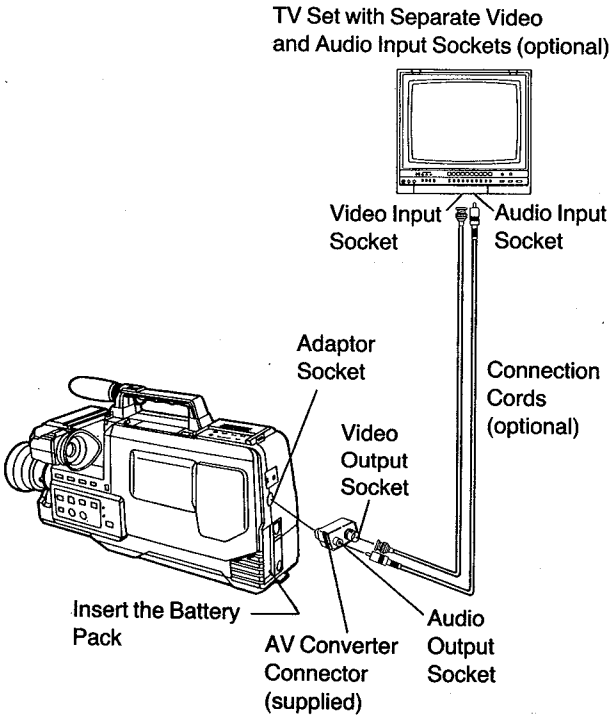
When the Date/Clock Selector is pushed repeatedly, the indication will change in the following sequence.

To record neither the Date nor the Clock Indication: → **To record the Date and Clock Indications:** (23:59 25.12.1988) → **To record only the Date Indication:** (25.12.1988) → back to neither

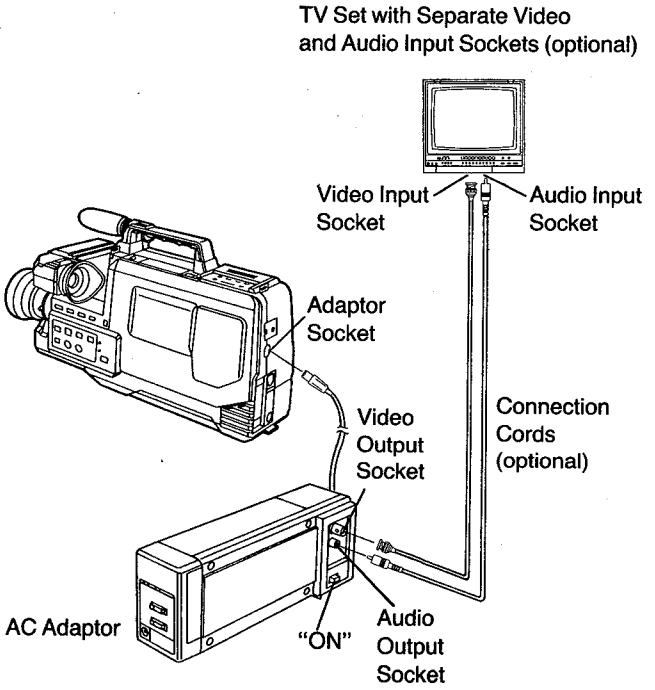
CABLE CONNECTIONS

Connection to a TV Set with video and Audio Input Sockets

When using the Battery Pack as power source:

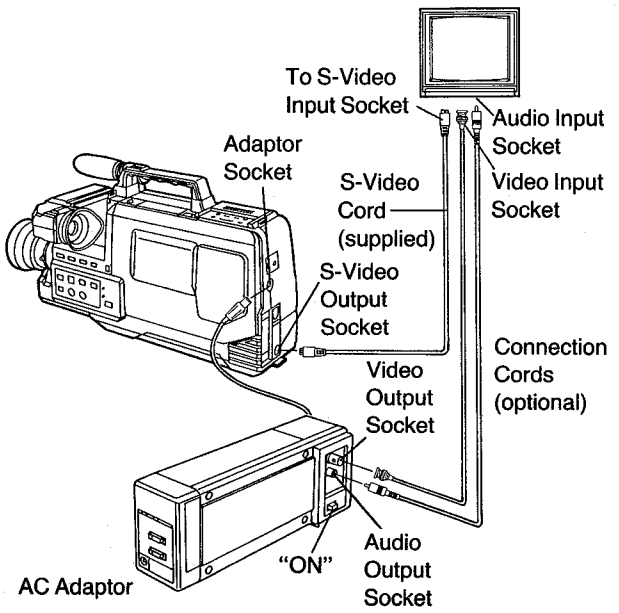


When using an AC adaptor:



Connection to a TV Set with an S-Video Input Sockets

When using an AC adaptor:

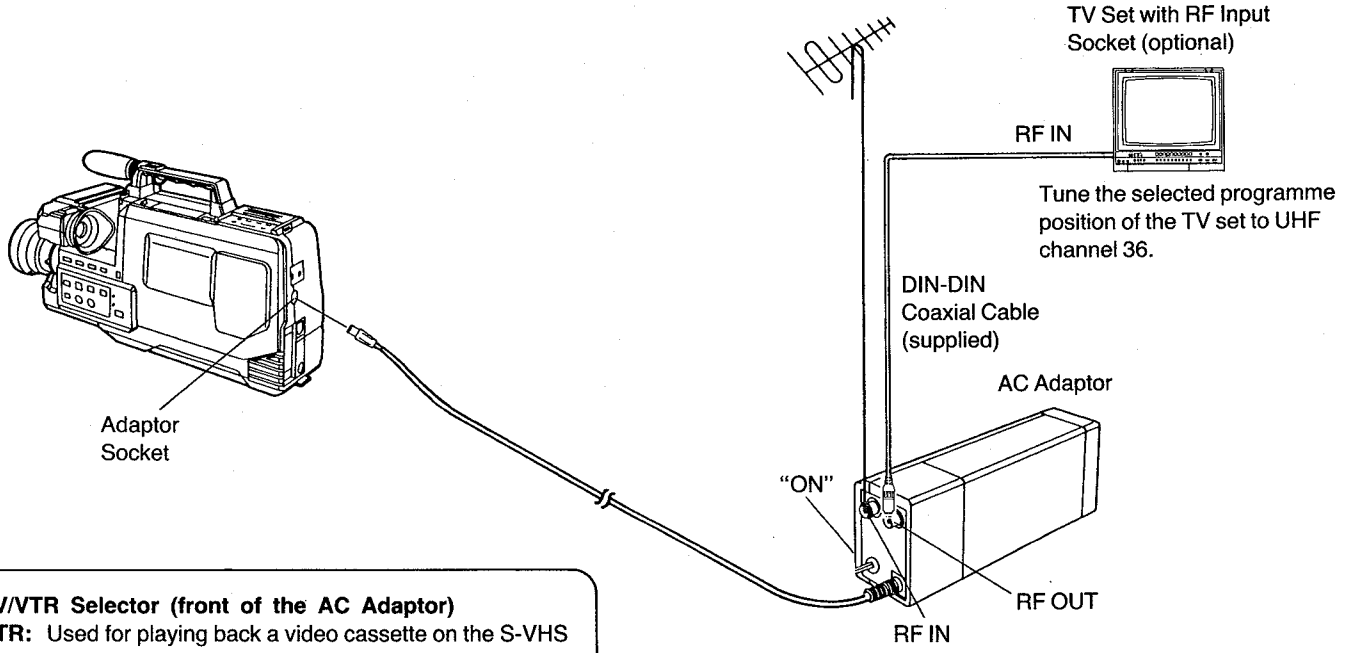


S (Separate)-Video Output Socket

The conventional video jack of VTRs outputs a combination of the luminance (Y) and color (C) signals which are recorded on the video tape. The new S (Separate)-Video Socket allows separate transmission of the two signals (Y) and (C) to a TV set or another VTR that have S-Video Input for improved picture quality and color fidelity.

Connection to a TV Set without Video and Audio Input Socket

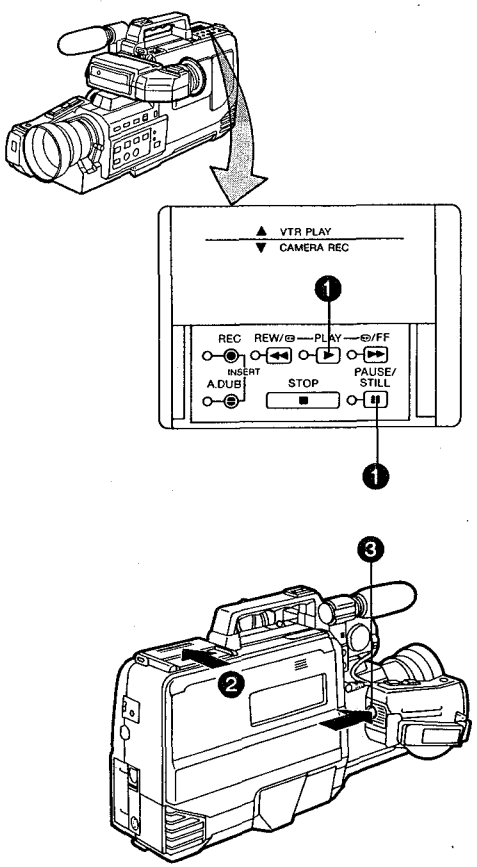
An AC adaptor is required:



TV/VTR Selector (front of the AC Adaptor)
VTR: Used for playing back a video cassette on the S-VHS Movie.
TV: Used for watching TV.
When the AC Adaptor is turned off with the Operation Switch, the TV/VTR Selector is automatically set to the "TV" position.

Note: Only use the specified adaptors for the connections.

ASSEMBLE EDITING



Preparation

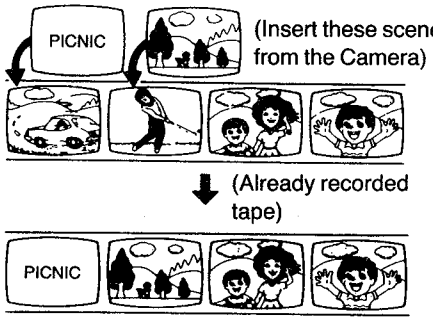
- Insert a video cassette with the erasure prevention tab intact.
- Slide the Camera/VTR Selector Cover open.

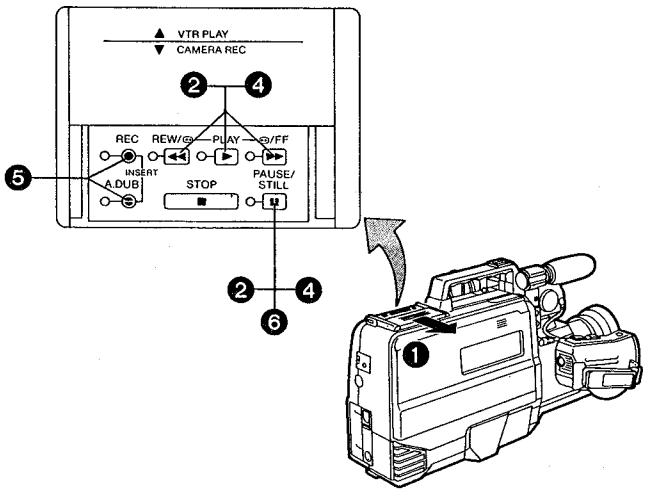
❶ Press the Play Button to locate the point where the new recording is to be joined (Assemble Editing), and press the Pause/Still Button at the desired point.

❷ Slide the Camera/VTR Selector Cover close.

❸ Press the Start/Stop Button.

INSERT EDITING



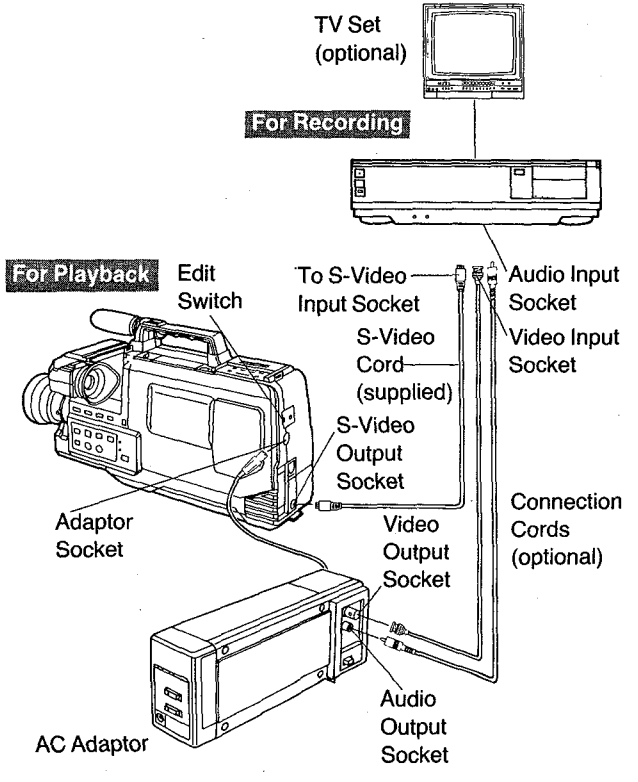


1. Slide the Camera/VTR Selector Cover open.
2. Locate (by using the Play, Fast Forward/Cue, Rewind/Review Button) the point where the Insert Editing is to finish, and press the Pause/Still Button at that point.
   The insert editing portion should be recorded in the same video system as the already recorded portions on the tape. It is possible to confirm the system of the recorded tape by playing it back.
   - If the S-VHS Indicator is lit during playback, the recording was made in the S-VHS system. Therefore, set the S-VHS System Selector to "ON/AUTO".
   - If the S-VHS Indicator is not lit during playback, the recording was not made in the S-VHS system. Therefore, set the S-VHS System Selector to "OFF".
3. Press the Reset Button. Then press the Memory Button so that the indication "M" appears.

   M0000
4. Locate (by using the Play, Fast Forward/Cue, Rewind/Review Buttons) the point where the Insert Editing is to start, and press the Pause/Still Button at that point.
5. Press the Record Button and the Audio Dubbing Button at the same time. "_ _ _" will be displayed in the EVF and the S-VHS Movie will be in the Insert Editing Pause mode.
6. After preparing the scene which will be inserted, press the Pause/Still Button. "INST" will be displayed in the EVF and the Insert Editing will start.
   - The Insert Editing will end at about the point where the Tape Counter reads "0000" and the S-VHS Movie will change over to the Still Playback mode.
   - Do not press the Pause/Still Button during the Insert Editing.
   - In Insert Editing, only the new video signals are recorded, but the original sound remains on the tape.

DUBBING (COPYING)

Connection of the S-VHS Movie with a Video Recorder



❶ Place the VTR into the recording pause mode, at the point on the tape where you wish to record the picture from the recorded cassette in the S-VHS Movie recording.

❷ Set the Edit Switch on the S-VHS Movie to "ON".

❸ Locate the exact point on the tape in the S-VHS Movie from where you want to start copying and put the S-VHS Movie into the still playback mode.

❹ Press the Pause/Still Button on the S-VHS Movie and the Pause/Still Button on the VTR to start the copying.

- The picture quality of a copied tape is inferior to that of the original tape.
  If the VTR used for copying features 2 tape speeds, select the normal speed (SP mode) for the best result.
- When a tape, that was originally recorded on the S-VHS Movie and that later has some scene added on a VTR by using the Insert Editing function, is again played back on the S-VHS Movie, the playback of the inserted part may be affected by uneven colour and coloured stripes.

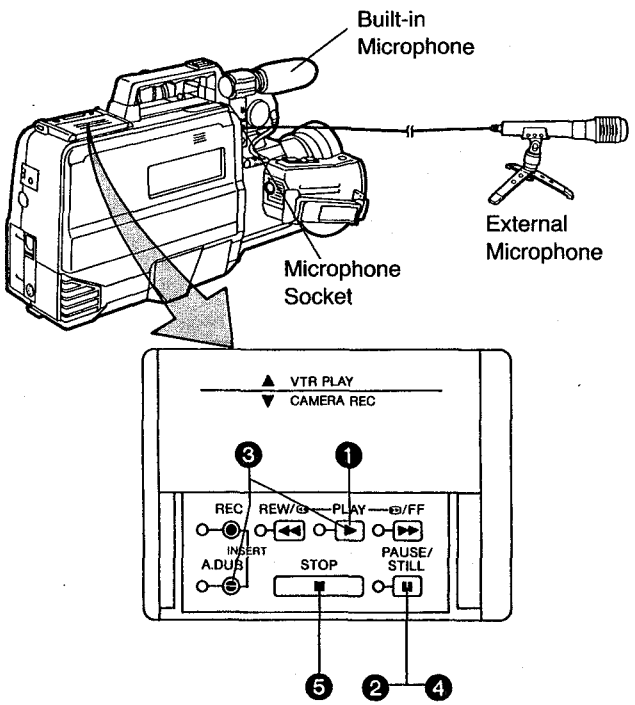
Connection of the S-VHS Movie to a VHS VTR Equipped with Synchro Edit Function

Connect the Remote Control Socket of the S-VHS Movie and the synchro edit socket of the recording VTR with the optional synchro connection cable (VW-K1).

- When editing, it is possible to operate the playback start and stop of the S-VHS Movie with the recording start and stop of the recording VTR.
- For the operation, refer to the operating instructions of the recording VTR.

AUDIO DUBBING

Audio Dubbing can be performed by using the built-in microphone or an external microphone. If an external microphone is connected, the built-in microphone is automatically switched off.

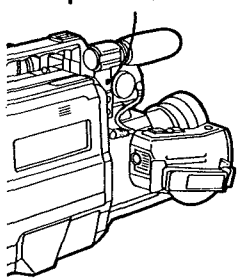


Preparation

- Insert a video cassette with the erasure prevention tab intact.
- Slide the Camera/VTR Selector Cover open.

1. Press the Play Button and find the point where you want to start the Audio Dubbing.
2. Press the Pause/Still Button at the exact point where you want to start the Audio Dubbing.
3. Press the Audio Dubbing Button and the Play Button at the same time.
4. Press the Pause/Still Button once again to release the tape from pause, and at the same time start the operation of the audio source. The Audio Dubbing will start.
5. Press the Stop Button to stop the Audio Dubbing.

Microphone Sensitivity Selector



The sensitivity of the Microphone can be increased by setting the Microphone Sensitivity Selector to "HIGH". Usually, this selector is left in the "NORMAL" position.

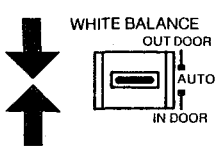
- If this selector is switched from "HIGH" to "NORMAL" during recording, the recording of the audio signal will be interrupted for a few seconds. However, this is not due to any malfunction.

TECHNIQUES FOR SHOOTING

White Balance

The S-VHS Movie, like any other video camera, responds differently to the colours depending on the weather and the time, even under seemingly same sunlight. The adjustment necessary to assure natural colour rendition is called "white balance adjustment".

"AUTO" position ..... The white balance is automatically adjusted as the illumination changes.



In certain cases, the use of the preset positions is recommended:

"INDOOR" ..... When shooting under the light from incandescent light bulbs or halogen lamps.

"OUTDOOR" ..... When shooting outdoors under the sunlight.

Cautions for Use of the Auto White Balance Adjustment Mode

In the Auto mode, the sensors built into the front of the S-VHS Movie detect the colour temperature of the illumination of the scene and automatically adjust the white balance. In the following shooting conditions, the Auto mode may not provide exact white balance adjustment.

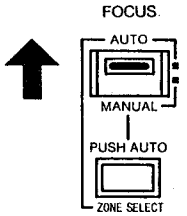
1. When the illumination of the subject is different from the light that falls on the S-VHS Movie.
2. When either the S-VHS Movie or the subject is in the shade.
3. When extremely bright light sources are used, such as mercury-vapour lamps, natrium lamps or some types of fluorescent lamps.
4. When the illumination is not bright enough (if the brightness on the sensor window is less than 15 lux).
5. When the scene has strong red-coloured illumination, e.g. during sunrise and sunset.
6. When intensive light hits only the red or the blue light sensor in the window.
7. When there is some other light source that is outside the sensing range of the white balance adjustment sensors, e.g. snowy landscape, cloudy weather, incandescent light and candlelight.
8. When there is some object placed in front of the sensor window that prevents light from reaching it.
9. When shooting in the macro range, the Auto mode does not operate. Therefore, use the "INDOOR" or "OUTDOOR" position.

Focus

Auto Focus

Set the Focus Mode Selector to "AUTO".

- While watching the picture in the EVF, aim the S-VHS Movie at the subject on which you want to focus.

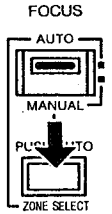


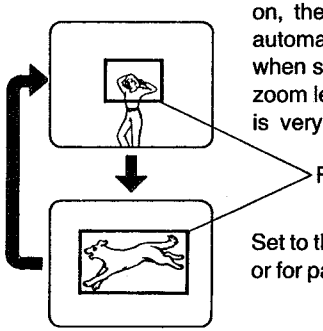
Note

This Auto Focus system does not measure the actual distance but adjusts the lens to the optimum focusing condition based on the video signal. Therefore, the distance setting on the lens may be different from the actual distance in some cases. However, this is not an indication of a malfunction.

Focusing Zone Selection with the Focus Adjusting Button

The focus will automatically be adjusted to the object within the focusing zone.





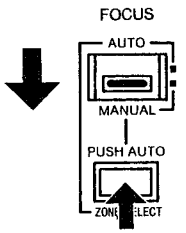
Every time the S-VHS Movie is turned on, the smaller focusing zone frame is automatically selected. Use this setting when shooting at the wide position of the zoom lens or when the subject to be shot is very small.

Focusing Zone Frame

Set to this size to shoot a moving subject or for panning and tilting.

Manual Focus

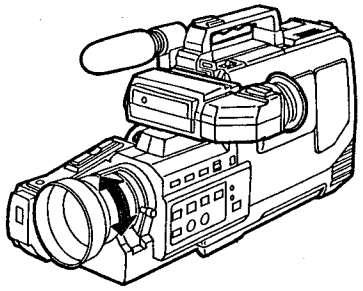
❶ Set the Focus Mode Selector to "MANUAL".



In the Manual Focusing mode, momentary automatic focus adjustment is possible for as long as the "PUSH AUTO" Button is kept pressed. (Note the Focusing Zone Frame will appear in EVF will Auto Focus is activated.)

- The automatic focus adjustment will continue to function for a few seconds after releasing the button.

❷ Turn the Focus Ring to adjust the focus.

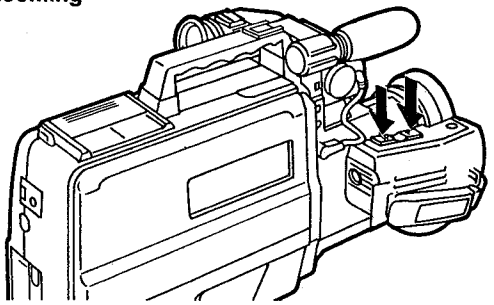


In the following shooting conditions, the Auto Focus system will not be able to provide stable and exact focus adjustment. Set the Focus Mode Selector to "MANUAL" in such cases and adjust the focus by turning the Focus Ring.

1. When shooting a subject through dirty glass.
2. When shooting subjects with shiny surfaces.
   (The focusing zone frame may disappear.)
3. When shooting a subject with a part of it near and another part far from the S-VHS Movie.
4. When shooting an oblique subject.
5. When shooting a subject with distinct horizontal stripes.
6. When shooting a flat subject such as a white wall.
7. When no part of the subject is within the focusing zone frame.
8. When shooting with the macro close-up function or with special lenses or filters.
9. When shooting a fast-moving subject.
10. When shooting a dark subject.
    (The focusing zone frame may go on and off.)

Zooming

Power Zooming

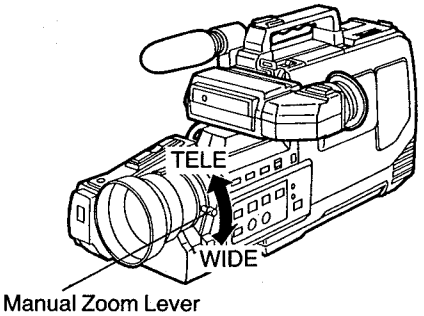


To zoom to wide-angle, press the "W" Button.

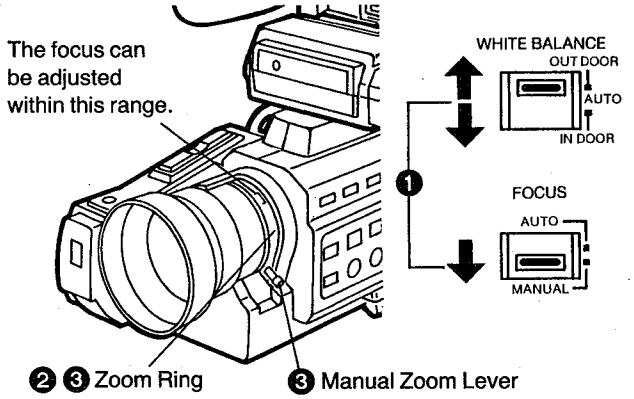
To zoom to telephoto, press the "T" Button.

Manual Zooming

Use the Manual Zoom Lever.



Macro Close-Up



Shooting Small Objects

The macro function allows shooting small plants and tiny insects. It is also possible to shoot photos from a photo album.
(The focus can be adjusted within a distance of 1.2 m.)

1. Set the White Balance Mode Selector to the "INDOOR" or "OUTDOOR" position and set the Focus Mode Selector to "MANUAL".
2. Turn the Zoom Ring all the way down to the click stop.
3. To enter the macro range, pull the Manual Zoom Lever outward and turn the Zoom Ring further down.
   Turn the Zoom Ring slowly to focus on the desired object.

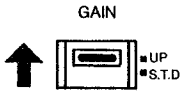
Lighting

Standard Values of Brightness

(lux)	(Place or Daylight)
10–15	•Candlelight
400–500	•Office with fluorescent lamps
500–700	•Department store counter
1000	•Sunlight one hour before sunset, clear day
2000	•Sunlight one hour after sunrise, cloudy day.
25000	•Sunlight at 10 AM, cloudy day
32000	•Sunlight at noon, cloudy day
35000	•Sunlight at 3 PM, clear day
65000	•Sunlight at 10 AM, clear day
100000	•Sunlight at noon, clear day

Pick-up Element Gain Switch

This switch can be used to increase the sensitivity of the CCD image pick-up element.
When shooting under conditions with weak illumination (less than approximately 200 lux), set this switch to the "UP" position.
"UP": Used to increase the brightness of the picture.
"S.T.D": This position is used for normal lighting conditions.

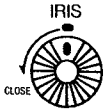


Iris Close/Open Adjustment Control

When a Subject is backlit
Turn in the "OPEN" direction.

•When shooting a backlit subject, be careful that the lens is not aimed at extremely bright light.

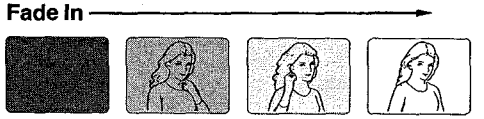
When the picture is too bright
Turn in the "CLOSE" direction.



•For normal lighting conditions, this control should be set to the center detent position. (Automatic adjustment)

Fade-in and Fade-out

You can fade out by pressing the button FADE;
when you let go of this button, you fade in again.
The sound is also faded out and faded in together with the picture.



Colour Phase Control

If the skin colour tones are not satisfactory due to special illumination, etc., adjust with the Colour Phase Control.

- Normally, set this control to the center click position.
- Control the tint before—and if necessary during—shooting while watching the picture on a colour monitor or TV set.

When the picture has a reddish tint:
Turn toward "YELLOW".

When the picture has a yellowish tint:
Turn toward "RED".

High Speed Shutter

The S-VHS Movie has 4 different shutter speeds:

1/50 s normal shutter speed

1/250 s electronic high speed shutter

1/500 s electronic high speed shutter

1/1000 s electronic high speed shutter

By repeatedly pushing the High Speed Shutter Selector, the shutter speed can be changed as follows:
1/250 sec.→1/500 sec.→1/1000 sec.→Normal

For videographing of fast movements, the shutter speed can be set to 1/250, 1/500 or 1/1000 with the switch HIGH SPEED SHUTTER.

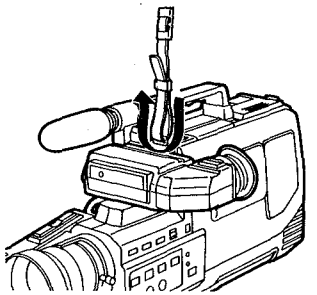
With a video recorder equipped with the playback functions super still playback, super still advance and super fine slow motion, sharp-contoured pictures can be played back in these functions.

- The following conditions are required for shooting with the High Speed Shutter function:
  The subject must be brightly lit, with little shade, under sunlight or some other illumination of more than 300 lux.
- If shooting under the illumination produced by fluorescent lamps, the picture will be adversely influenced by flickering.
- If the picture is played back in the normal playback mode, the movements may appear to be not very smooth.
- The playback picture will be slightly darker than the picture recorded without using the High Speed Shutter function.

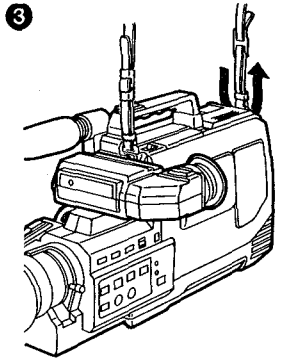
Accessories

How to Attach the Shoulder Strap

❶

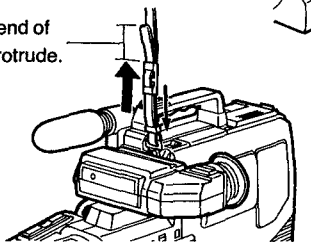


❸



❷

About 2 cm of end of strap should protrude.



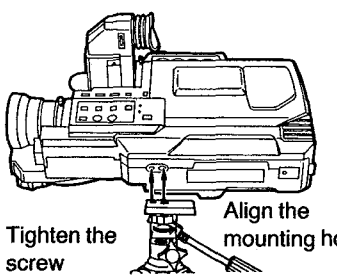
❶ Pass the end of the Shoulder Strap through the slit of the Shoulder Strap Holder on the front of the S-VHS Movie.

❷ Securely attach the end of the Shoulder Strap.

❸ Attach the other end of the Shoulder Strap at the upper part of the rear of the S-VHS Movie in the same way as mentioned above.

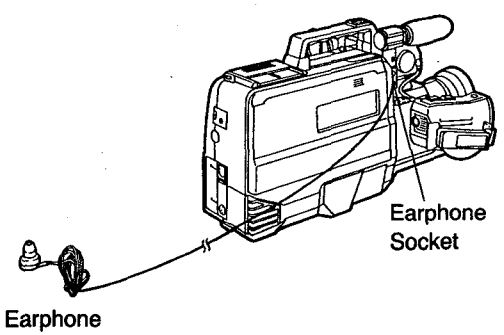
How to Mount the S-VHS Movie on a Tripod (optional)

Bottom side of the S-VHS Movie



- Place the tripod on a stable surface, with its legs fully spread.

Using the Earphone



CAUTIONS Please read these cautions before operating the S-VHS Movie

Video Head Clogging

The video heads are the means by which the S-VHS Movie places picture signals on the tape during recording, and reads picture signals from the tape during playback. If these heads become dirty and clogged from long use, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound of which is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such symptoms occur, have the S-VHS Movie checked by qualified service personnel.

If Condensation Forms Inside the S-VHS Movie

Condensation (dew) forms when warm air comes in contact with a cold object, for example on a window in a heated room in winter.

Condensation may form in the S-VHS Movie and damage the tape and the video heads, if:

- The S-VHS Movie is in a room where the heater has just been turned on.
- The S-VHS Movie is in a room with steam or high humidity.
- The S-VHS Movie is brought from cold surroundings into a well-heated room.
- The S-VHS Movie is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.
- When condensation has formed inside the S-VHS Movie, the "DEW" indication in the EVF will flash and a few seconds later, the unit will turn itself off to protect the tape and the video heads. After a while, turn the unit on again and make sure that the Dew Mark is not displayed any more. Then, wait about 1 hour before operating the S-VHS Movie again. Depending on the surrounding conditions, it may take several hours before the S-VHS Movie can be used again.
- As condensation forms gradually, it may take about 10–15 minutes before the S-VHS Movie turns itself off after a change of working environment.
- In an extremely cold place, condensation may freeze and turn into frost. In this case, it may take quite some time for the frost to melt, turn into dew and evaporate.
- When you bring the S-VHS Movie from a very cold place, e.g. the ski slopes, into a heated room, keep it in a tightly closed plastic bag or similar to prevent condensation from forming inside the S-VHS Movie.

Keep the S-VHS Movie away from Oily Smoke and Steam

Protect the S-VHS Movie from Humidity and Dust

Surrounding Conditions

Use the S-VHS Movie under conditions where the temperatures are between 0°C and 40°C, and where the humidity is between 10% and 80%. To avoid deformation of the outer case or other damage, do not leave it exposed to direct sunlight for any length of time, also never leave it in a closed automobile.

Keep the S-VHS Movie Away from Heaters

Keep the S-VHS Movie Away from TV Sets

Do not place the S-VHS Movie near a TV set because it might impair the picture and sound quality of the recorded tape, and/or adversely affect the performance of the S-VHS Movie.

Keep Magnets Away

Never bring a magnet or magnetized object such as fluorescent lamps, motors, electric clocks and battery operated toys etc. close to the S-VHS Movie because this could adversely affect its performance.

Keep the S-VHS Movie Away from Areas with Strong Electric Fields

The picture may become distorted, when the S-VHS Movie is used in places with strong electric fields, such as near TV or radio antennas.

Never Put any Objects Inside

Never insert any object other than a video cassette into the S-VHS Movie. If any object is dropped into it or if any liquid is spilled into it, consult qualified service personnel. Operating it with some foreign matter inside may cause fire or electric shock.

No Fingers Inside

Touching internal parts of the S-VHS Movie is very dangerous and may cause serious damage to the S-VHS Movie. Do not attempt to disassemble it. For internal inspection, adjustment or repairs, consult qualified service personnel.

Handle with Care

Never drop the S-VHS Movie or expose it to strong physical shocks. Shocks during use may result in abnormal operation and performance.

Appearance of Smear Distortion

Smear distortion is a peculiar characteristic of the CCD device. It appears as a bright vertical stripe on the screen when the S-VHS Movie is aimed at spot lights or other bright lights and light reflecting objects. To avoid this problem, make sure not to aim the S-VHS Movie at such strong light sources during shooting.

Cover the Lens with the Cap after Shooting

Keep the S-VHS Movie Away from Strong Light

Do not expose the S-VHS Movie to strong light, because the heat from it may cause deformation or other damage.

When the S-VHS Movie Is Not Being Used

Remove the video cassette and turn the S-VHS Movie off with the Operation On/Off Switch.

Keep Insecticide Spray Away

Never spray things like insecticide on the lens and body of the S-VHS Movie. Also, never leave rubber or vinyl objects in contact with any part of it for a long time, because the colour might change and the body surface might be damaged.

Never Place the S-VHS Movie with the Cassette Compartment Side Facing Down

Never use the S-VHS Movie with the cassette compartment facing down as this might cause uneven winding and slacking of the tape.

Cleaning the S-VHS Movie

- The body of the S-VHS Movie is made of plastic materials. Never use benzine, thinner or other chemicals for cleaning, because the colour might be changed and the case surface might be damaged.
- Wipe the case and operation panel with a soft, clean cloth. For persistent stains, use a cloth moistened with mild detergent and water, and then wipe with a dry cloth.
- Clean the lens only with a blower brush (used for photo cameras) or a special lens cleaning tissue (used for glasses and cameras).

BEFORE REQUESTING SERVICE

Power Source

- The power does not turn on.
  - —Is the power supply unit correctly connected to the S-VHS Movie?
- The power turns on, but it turns off again immediately.
  - —If the Battery Pack is exhausted, replace it with a fully charged one.
  - —If condensation has formed, wait until it has dissolved.

Camera Recording

- The power is on, but no picture appears in the EVF.
  - —Is the lens covered with the lens cap?
- Camera recording cannot be performed.
  - —If the tab of the cassette is broken out, cover the tab hole with adhesive tape.
- The picture is not clear.
  - —Is the eyepiece correctly adjusted to your eyesight?
  - —Is the lens surface dusty?
- The Auto Focus system does not provide optimum focus adjustment.
  - —Is the Focus Mode Selector set to "AUTO"?
  - —For shooting conditions where the "AUTO" setting of the Focus Mode Selector cannot provide optimum focus adjustment, set the selector to "MANUAL" and adjust the focus.

Playback

- No playback picture is reproduced.
  - —Is the connection to the TV set correct?
  - —Is the TV set tuned to the video playback channel?
- The colours are not correct.
  - —Is the colour adjustment of the TV set correct?
- The playback picture is not in colour.

  The playback picture has large amounts of "snow".
  - —Adjust the tracking.
  - —If the tape is old, use a new tape.

SPECIFICATIONS

AG-450EG, E

Power Source:	DC 12 V	
Power Consumption:	Recording mode; 12 V—9.0 W (Battery Operation) Stand-by mode; 12 V—1.0 W (Battery Operation)	
Video Recording System:	4 Rotary heads, helical scanning system	
Tape Speed:	23.39 mm/s	
Tape Format:	S-VHS & VHS tape	
Recording/Playback Time:	240 min. with NV-E240	
FF/REW Time:	Less than 12 min. with NV-E180	
VIDEO		
Television System:	CCIR; 625 lines, 50 fields PAL colour signal	
Modulation System:	Luminance; FM azimuth recording Colour signal; Converted subcarrier phase shift recording	
Output Level:	ADAPTOR (Multi); 1.0 Vp-p	75 ohm unbalanced
AUDIO		
Input Level:	MIC IN (M3); −70 dB	4.7 kohm unbalanced
Output Level:	ADAPTOR (Multi); −8 dB	600 ohm unbalanced
Audio Track:	1 track (MONO)	
Image Sensor:	½-inch CCD Image Sensor	
Lens:	10:1 Power Zoom Lens with MACRO Function, Auto Iris. Auto Focus System F1.4 (8–80 mm) Lens Front Diameter 55 mm	

Viewfinder:	0.9-inch Electronic Viewfinder
Standard Illumination:	1,400 Lux
Minimum Required Illumination:	7 Lux (Gain up)
Video Horizontal Resolution:	Colour; More than 400 lines (S-VHS)
Audio Frequency Response:	80 Hz–8 kHz
Operating Temperature:	0°C–40°C
Operating Humidity:	10%–80%
Weight:	Approx. 2.7 kg (without Battery Pack)
Dimensions:	127 (W)×223 (H)×417 (D) mm (with Viewfinder turned down)

VW-AM7E

Power Source:	AC 100–240 V, 50–60 Hz (Automatic voltage adjustment)
Power Consumption:	44 W
DC Output:	DC 12 V 1.2 A, DC 20 V 0.1 A (S-VHS Movie) DC 12 V 1.5 A (Battery pack charging)
RF Modulated:	UHF channel 36 (±4), 75 ohm, unbalanced
Weight:	Approx. 0.86 kg
Dimensions:	63 (W)×84 (H)×219.5 (D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.